



# Cleanup after the Flood

## Cleanup

Walls, hard-surfaced floors, and many other household surfaces should be cleaned with soap and water and disinfected with a solution of 1 cup of household bleach to five gallons of water or other disinfectant.

**! Follow label instructions when using bleach. Do not mix bleach with any other household chemical products. Ammonia, toilet bowl cleaner and other household cleaners mixed with bleach can cause a chemical reaction, releasing a very toxic cloud of gas. Remember to open a window to allow in fresh air when you are cleaning a room.**

Be particularly careful to thoroughly disinfect surfaces that may come in contact with food, such as counter tops, pantry shelves, refrigerators, etc. Areas where small children play should also be carefully cleaned. Wash all linens and clothing in hot water, or dry clean them. For items that cannot be washed or dry cleaned, such as mattresses and upholstered furniture, air dry them in the sun and then spray them thoroughly with a disinfectant. Steam clean all carpeting. If there has been a backflow of sewage into the house, wear rubber boots and waterproof gloves during cleanup. Remove and discard contaminated household materials that cannot be disinfected, such as wall coverings, cloth, rugs, and drywall.

For more information :  
Division of Environmental  
Health & Protection  
502-574-6650

<http://health.loukymetro.org>





# Sanitation and Hygiene after the Flood

## **Sanitation and Hygiene**

It is critical for you to remember to practice good basic hygiene during the emergency period. Always wash your hands with soap and water that has been boiled or disinfected:

- before preparing or eating food;
- after toilet use;
- after participating in flood cleanup activities; and
- after handling articles contaminated with flood water or sewage.

Flood waters may contain some fecal material from overflowing sewage systems, and agricultural and industrial byproducts. Although skin contact with flood water does not, by itself, pose a serious health risk, there is some risk of disease from eating or drinking anything that has been contaminated with flood water. If you have any open cuts or sores that will be exposed to flood water, keep them as clean as possible by washing well with soap to control infection. If a wound develops redness, swelling, or drainage, seek immediate medical attention.

In addition, parents need to help children avoid waterborne illness. Do not allow children to play in flood water areas, wash children's hands frequently (always before meals), and do not allow children to play with flood-water contaminated toys that have not been disinfected. You can disinfect toys using a solution of one cup of bleach in 5 gallons of water.

**For more information :**  
**Division of Environmental**  
**Health & Protection**  
**502-574-6650**  
<http://health.loukymetro.org>  
**502-574-6650**





# Drinking Water Safety after the Flood

## Water Quality

Listen for public announcements on the safety of the municipal water supply. Flooded, private water wells will need to be tested and disinfected after floodwaters recede. Questions about testing should be directed to :

Division of Environmental Health & Protection : 502-574-6650  
Louisville Water Company : 502-569-3640

## Water for Drinking and Cooking

Safe drinking water includes bottled, boiled, or treated water. Environmental Health and Protection or the Louisville water Company can make specific recommendations for boiling or treating drinking water in your area. Here are some general rules concerning water for drinking and cooking. Remember:

- Do not use contaminated water to wash dishes, brush your teeth, wash and prepare food, or make ice.
- If you use bottled water, know where it came from. Otherwise, clear water should be boiled or treated before use. Drink only bottled, boiled, or treated water until your supply is tested and found safe.
- Avoid sources containing floating material and water with a dark color or an odor.

**Boiling water** is the best method for purifying contaminated water.

Micro-organisms that cause disease cannot survive boiling temperatures.

- Bring clear, not cloudy water to a rolling boil for 3 minutes.
- Pour the water back and forth from one clean container to another to improve taste.
- You can add a pinch of salt to improve the taste.

**Chemical purification** is another method, if boiling the water is not an option.

Household chlorine bleach may be used to purify the water. Be sure hypochlorite is the only active ingredient in the bleach. Bleach that contains soaps or fragrances can not be used.

- With an eye dropper, add 8 drops of bleach per gallon of water
- Stir and let stand.
- After 30 minutes, the water should taste and smell of chlorine.  
At this time it can be used.
- If the taste and smell and appearance has not changed, add another dose and let stand. If after one half hour the water still does not have a chlorine smell, do not use it.

For more information :  
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Health & Protection  
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# Disinfecting a Well after the Flood

## Disinfecting Wells

If you suspect that your well may be contaminated, contact the Division of Environmental Health and Protection at 502-574-6650 or agriculture extension agent for specific advice. Here are some general instructions for disinfecting wells.

### To Disinfect Bored or Dug Wells

- To determine the exact amount to use, multiply the amount of disinfectant needed (according to the diameter of the well) by the depth of the well. For example, a well 5 feet in diameter requires 4 1/2 cups of bleach per foot of water. If the well is 30 feet deep multiply 4 1/2 by 30 to determine the total cups of bleach required ( $4\frac{1}{2} \times 30 = 135$  cups). Add this total amount of disinfectant to about 10 gallons of water. Splash the mixture around the wall or lining of the well. Be certain the disinfectant solution contacts all parts of the well.
- Seal the well top.
- Open all faucets and pump water until a strong odor of bleach is noticeable at each faucet.
- Then stop the pump and allow the solution to remain in the well overnight.
- The next day, operate the pump by turning on all faucets, continuing until the chlorine odor disappears. Adjust the flow of water faucets or fixtures that discharge to septic systems to a low flow to avoid overloading the disposal system.

### To Disinfect Drilled Wells

- Determine the amount of water in the well by multiplying the gallons per foot by the depth of the well in feet. For example, a well with a 6-inch diameter contains 1.5 gallons of water per foot. If the well is 120 feet deep, multiply 1.5 by 120 ( $1.5 \times 120 = 180$  gallons).
- For each 100 gallons of water in the well, use 3 cups of bleach. There are sixteen cups in each gallon of liquid bleach.
- Mix the total amount of liquid with about 10 gallons of water.
- Pour the solution into the top of the well before the seal is installed.
- Connect a hose from a faucet on the discharge side of the pressure tank to the well casing top. Start the pump. Spray the water back into the well and wash the sides of the casing for at least 15 minutes.
- Open every faucet in the system and let the water run until the smell of chlorine can be detected. Then close all the faucets and seal the top of the well.
- Let stand for several hours, preferably overnight.
- After you have let the water stand, operate the pump by turning on all faucets continuing until all odor of chlorine disappears. Adjust the flow of water from faucets or fixtures that discharge into septic tank systems to a low flow to avoid overloading the disposal system.

For more information : <http://www.epa.gov/safewater/privatewells/whatdo.html>

For more information :  
Division of Environmental  
Health & Protection  
502-574-6650  
<http://health.loukymetro.org>





# Food Safety after the Flood

## **Food Safety**

Do not eat any food that may have come into contact with flood water. Discard any food without a waterproof container if there is any chance that it has come into contact with flood water. Undamaged, store-bought canned foods can be saved if you remove the can labels, thoroughly wash the cans, and then disinfect them with a solution consisting of one cup of bleach in 5 gallons of water. Re-label your cans, including expiration date, with a marker. Food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, and home canned foods should be discarded if they have come into contact with flood water because they cannot be disinfected. For infants, use **only** "ready-to-use" canned baby formula that requires no added water, rather than powdered formulas prepared with treated water.

## **Frozen and Refrigerated Foods**

If your refrigerator or freezer may be without power for a long period:

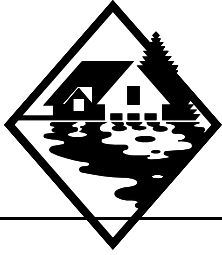
- Divide your frozen foods among friends' freezer units if they have electricity;
- Seek freezer space in a store, church, school, or commercial freezer that has electrical service; or
- Use dry ice -- 25 pounds of dry ice will keep a 10-cubic-foot freezer below freezing for 3-4 days. (Exercise care when handling dry ice, because it freezes everything it touches. Wear dry, heavy gloves to avoid injury.)

Thawed food can be eaten if it is still 45° F or less, and refrozen if it is "refrigerator cold," or if it still contains ice crystals. To be safe, remember, discard any food that has been at room temperature for two hours or more, above 45° F, and any food that has an unusual odor, color, or texture. Your refrigerator will keep foods cool for about 2-4 hours without power if it is unopened.

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<http://health.loukymetro.org>





# Precautions to take when returning Home after the Flood

## **Precautions When Returning to Your Home**

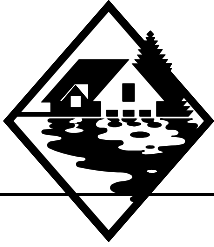
Electrical power and natural gas or propane tanks should be shut off to avoid fire, electrocution, or explosions. Try to return to your home during the daytime so that you do not have to use any lights. Use only battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches. If you smell gas or suspect a leak, turn off the main gas valve, open all windows, and leave the house immediately. Notify your local gas company, the police or fire departments. Do not turn on the lights or do anything that could cause a spark. Do not return to the house until you are told it is safe to do so. Your electrical system may also be damaged. If you see frayed wiring or sparks, or if there is an odor of something burning but no visible fire, you should immediately shut off the electrical system at the circuit breaker.

Avoid any downed power lines, particularly those in water. Avoid wading in standing water, which also may contain glass or metal fragments. You should consult your utility company about using electrical equipment, including power generators. Be aware that it is against the law and a violation of electrical codes to connect generators to your home's electrical circuits without the approved, automatic-interrupt devices. If a generator is on line when electrical service is restored, it can become a major fire hazard. In addition, the improper connection of a generator to your home's electrical circuits may endanger line workers helping to restore power in your area. All electrical equipment and appliances such as refrigerators, washing machines and dryers must be completely dry before returning them to service. It is advisable to have a certified electrician check these items if there is any question. Also, remember not to operate any gas-powered equipment indoors.

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# Mosquitoes after the Flood

## **Mosquitoes**

The large amount of pooled water remaining after the flood will lead to an increase in mosquito populations, especially if we have warm weather. Mosquitoes are most active at sunrise and sunset. The majority of these mosquitoes will be pests, but some may be the species that carry communicable diseases. The Louisville Metro Division of Environmental Health and Protection Mosquito Control Program will be actively working to control the spread of any mosquito-borne diseases.

To protect yourself from mosquitoes, use screens on dwellings, and wear long-sleeved and long-legged clothing. Insect repellents containing DEET are very effective. Be sure to read all instructions before using DEET. Care must be taken when using DEET on small children. Products containing DEET are available from retail outlets. To control mosquito populations, dispose of cans, plastic containers, bottles or any rubbish that can hold water. Dispose of old tires, turn over any lawn equipment, wheelbarrows or any other containers that could hold water.

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## Other Hazards after the Flood

### **Swiftly Flowing Water**

If you enter swiftly flowing water, you risk drowning -- regardless of your ability to swim. Swiftly moving shallow or deep water can be deadly, and even shallow standing water can be dangerous for small children. Cars or other vehicles do not provide adequate protection from flood waters. Cars can be swept away or may break down in moving water.

### **Animals**

Many wild animals have been forced from their natural habitats by flooding, and many domestic animals are also without homes after the flood. Take care to avoid these animals, because some may carry rabies. Remember, most animals are disoriented and displaced, too. Do not corner an animal. If an animal must be removed, contact your local animal control authorities. The Louisville Metro Division of Environmental Health and Protection can provide information about the types of wild animals that carry rabies in your area. Report cat and dog bites to the Division Rabies Program. Rats may be a problem during and after a flood. Take care to secure all food supplies, and remove any animal carcasses in the vicinity by contacting your local animal control authorities. If you are bitten by any animal, seek immediate medical attention. If you are bitten by a snake, seek emergency care.

### **Chemical Hazards**

Use extreme caution when returning to your area after a flood. Be aware of potential chemical hazards you may encounter during flood recovery. Flood waters may have buried or moved hazardous chemical containers of solvents or other kinds of industrial chemicals from their normal storage places. If propane tanks (whether 20-lb. tanks from a gas grill or household propane tanks) are discovered, do not attempt to move them yourself. These are a very real danger for fire or explosion. If any are found, police or local fire departments should be contacted immediately. Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution, using insulated gloves. Avoid contact with any acid that may have spilled from a damaged car battery.

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# Mold Cleanup after the Flood

**After floods, excess moisture and standing water contribute to the growth of mold in homes and other buildings. When returning to a home that has been flooded, be aware that mold may be present and may be a health risk for your family. Exercise caution in cleaning and disinfecting molds because they release mold spores when disturbed. Never mix bleach with ammonia; fumes from the combination are toxic. When discarding items contaminated with mold, use caution or hire a professional.**

**Materials You Will Need:** Gloves, Mask (Painter's or respirator), Buckets, Trash bags, Scrub brush, Wet-Dry Shop Vacuum, Broom, Mop, Sponges, Rags, Non-ammonia detergent, soap or commercial cleaner (phenolic or pine-oil based), Disinfectant: household chlorine bleach:1 cup bleach to 5 gallons water.

**\*Dry Out a Water or Mold Damaged House**

Turn off main power if wiring is wet or moldy. Have electrician check the house's electrical system before turning power on again. Open the house to fresh air when the humidity is lower outside than inside. Use fans and dehumidifiers to remove excess moisture unless mold has already started to grow (fans may spread mold spores). Use the furnace only if the ducts have not come in contact with water or mold, otherwise you should have the heating ducts professionally checked. Remove all wet items such as furniture, rugs, bedding, toys and carpeting. ***Discard soaked or moldy carpeting!***

**\*Interior Walls and Ceilings:** Remove all wet or contaminated porous materials such as ceiling tiles, Sheet-rock, and wood by-products. If wallboard is soaked, remove to a foot above the water mark and discard. Drain walls by removing baseboard and drilling holes near floor. Dry panel-type wall by pulling the bottom edge out from studs. Check interior of the wall for hidden mold.

**\*Floors and Exterior Walls: *Remove all wet insulation.*** Discard all but rigid insulation, which can be reinstalled after disinfecting and drying.

## **Cleaning and Disinfecting**

**\*Before you begin:** Make sure the working area is well ventilated. Wear gloves and a mask; protect your eyes. If mold is present, clean a small test patch. If you feel your health is adversely affected, consider hiring a professional to carry out the work. Disinfectants are intended to be applied to ***already cleaned*** materials.

**\*Hard Surfaces:** Wash items such as metal, glass, solid wood, plastic and other nonporous materials with a non-ammonia detergent and hot water. Use a stiff brush on rough surface materials such as concrete. Use a Wet-Dry shop vacuum to remove water and clean items such as studs or exposed wood framing. Disinfect all cleaned surfaces with your household bleach solution (1 cup bleach in 5 gallons of water). Let the solution stay on the surface for at least 10 minutes before rinsing with clear water or allowing to dry.

**\*Porous Materials:** This includes upholstered furniture, rugs, bedding, clothing, curtains, books and papers and furniture made of pressed particle materials. Deciding whether or not to keep a contaminated item? Remember, ***when in doubt, throw it out.*** If an item has been wet for less than 48 hours, it may be able to be cleaned and disinfected with phenolic or pine-oil cleaner. It should then be completely dried and monitored for several days for any fungal growth and odors – if any mold develops, discard the item.

**Allow the wet or contaminated area to dry completely (usually two to three days) before beginning to rebuild or replace the damaged items.**

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<http://health.loukymetro.org>





# Take Care of Yourself and Your Family after the Flood

## Summary

The physical devastation that accompanies a flood is enormous. But as the flood waters recede, there may be more threats to your personal health and safety. By taking some basic health and safety precautions, you can help prevent many injuries as well as the possibility of some diseases.

There is usually no increased risk of getting vaccine-preventable diseases - like diphtheria or tetanus - during a flood. However, you should always try to keep your immunizations up-to-date, as a matter of routine. A basic series of immunizations against diphtheria, tetanus, and pertussis is recommended for all children. Adolescents should get a booster for tetanus and diphtheria (Td) at the age of 11 or 12, and adults should get a Td booster every 10 years, throughout life. If you get a puncture wound or an open wound/cut is contaminated with feces, or other soil while cleaning up flood debris, and you haven't had a Td booster within the last five years, ask your doctor whether you should get a tetanus shot.

Your Louisville Metro Health Department is available to assist you in finding healthcare or a health care provider.

In the midst of all this water, remember that heat or cold can play a major role in your personal health. Drink plenty of fluids, avoid caffeine, and do not wait to get thirsty. When possible, take a break, being careful not to get any more exhausted than you already may be.

The weeks after a flood are going to be rough. In addition to your physical health, you need to take some time to consider your mental health as well. Remember that some anxiety, sleeplessness, or anger, hyperactivity, mild depression, or lethargy are normal, and may go away with time. Your local American Red Cross Chapter can refer you to agencies for help.

For more information :  
Louisville Metro Health Department  
502-574-6520  
Division of Environmental Health &  
Protection  
502-574-6650  
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